

REMARKS

Reconsideration of this application courteously is solicited.

By this paper, claims 3, 4, 9, 10, 13, and 14 have been canceled. Independent claims 1, 7, and 12 have been amended to more clearly distinguish over the art asserted in the Office Action of December 7, 2005.

As amended, independent claims 1, 7, and 12 now recite particulars of the diffraction grating, in addition to particulars of the optical cavity. The diffraction grating is now defined as having a reflection spectrum where "a full width at half maximum of the reflection spectrum is 0.4 nanometers or less." Each independent claim continues in describing that Applicants' resulting laser module, incorporating such an optical cavity length, and such a diffraction grating, suppresses multimode oscillations in excess of two (primary) modes.

Support for the above-summarized recitation in the independent claims is provided throughout the specification. For instance, invitation is made to pages 29-31 of Applicants' specification. At these pages, Applicants described that where the full width at half maximum of the reflection spectrum of the diffraction grating is set to 0.4 nanometers or below, all longitudinal mode oscillations other than two modes in the vicinity of the Bragg wavelength will be suppressed. These other modes will be suppressed to "an ignorable level." (See the sentence bridging pages 29 and 30.) Suppression of such other longitudinal modes, the specification continues, prevents increases in group delay distortion, and therefore reduces deterioration in transmissions. These features patentably distinguish independent claims 1, 7, and 12, and indeed all the claims, from the asserted art.

New claims 15 and 16 also are supported by the original disclosure. For instance, see any of Figures 1A-2B and their supporting description in the text. In each of these figures, reference numbers 19a and 19b denote lead terminals that apply the transmission signal D_{IN} to the optical amplifier 3.

The art asserted consists of U. S. Patent 6,625,182 to Kuksenkov et al., GB Patent 002110835 to Bricheno, and the Tanaka et al. article "100 GHz-spacing 8-channel light source integrated with gratings and LDs on PLC platform" cited by Applicants' Information Disclosure Statement of June 25, 2004 (hereinafter Tanaka et al). The Kuksenkov et al. patent was applied in a rejection of claims 1, 3, 4, 6, 7, and 9-11 under 35 U.S.C. § 102(e) for purported anticipation. The teachings of Bricheno were combined with that of Kuksenkov et al. in asserting a rejection of claims 2 and 8 for obviousness under 35 U.S.C. § 103(a). Finally, Tanaka et al. were applied in asserting a rejection of claims 12-14 under 35 U.S.C. § 103(a), again for purported obviousness. All of these rejections are traversed.

Applicants respectfully submit that Kuksenkov et al. alone do not teach or suggest Applicants' requirements recited in independent claims 1 and 7. While claims 1 and 7 set forth requirements for the optical cavity length and for the diffraction grating which limit the number of oscillation modes of Applicants' laser module to no more than two, this is not the case with Kuksenkov et al. Rather, to those of ordinary skill in the art, Kuksenkov et al. teach a laser module that has three oscillation modes. For at least this reason, Kuksenkov et al. cannot teach or suggest Applicants' laser module arrangements as set forth in independent claims 1 and 7. Therefore, the rejection based upon Kuksenkov et al. alone is traversed.

The Bricheno patent document does not remedy the deficiencies of Kuksenkov et al. with respect to claims 1 and 7. Bricheno does not motivate or otherwise suggest modification of the teachings of Kuksenkov et al. so as to limit the number of oscillation modes to no more than two.

Hence, the rejection of claims 2 and 8 based upon the purported combination of Kuksenkov et al. and Bricheno likewise is traversed.

The rejection of claims 12-14 over Tanaka et al. is overcome for reasons similar to those presented in connection with Kuksenkov et al. Applicants respectfully submit that Tanaka et al. disclose five oscillation modes in connection with their laser module. As such, Tanaka et al., like Kuksenkov et al., fail to teach or suggest to those of ordinary skill in the art, a laser module arranged to suppress all but (at least) two oscillation modes (longitudinal modes).

For at least the foregoing reasons, the three rejections applied in the December 7, 2005 Office Action have been overcome. In summary, Applicants submit, because the two alleged primary references, Kuksenkov et al. and Tanaka et al., do not disclose reduction of transmission deterioration by limiting the number of modes to two, Kuksenkov et al. and Tanaka et al. simply cannot be said to teach or suggest Applicants' recited limitations for the cavity length and the diffraction grating. Hence, withdrawal of each of these rejections courteously is solicited.

New claims 15 and 16 patentably distinguish over the asserted art of record by virtue of their dependency from claims 1 and 7 respectively. However, these new claims recite subject matter that is independently patentable of the art applied of record. For instance, Kuksenkov et al. disclose, in Figure 6, excitation of their optical amplifier device by light. To those of ordinary skill in the art, this teaching would not suggest Applicants' recited lead terminals through which their optical amplifier device receives transmission signals. This is the subject matter of each of claims 15 and 16. For at least this additional reason, Applicants regard claims 15 and 16 likewise as patentably distinctive.

In view of the foregoing amendments and Remarks, it courteously is urged that all of the claims are allowable and that this application is therefore in condition for allowance. Favorable action in this regard earnestly is solicited.

Respectfully submitted,
SMITH, GAMBRELL & RUSSELL, LLP

By:



Michael A. Makuch, Reg. No. 32,263
1850 M Street, N.W., Suite 800
Washington, D.C. 20036
Telephone: (202)263-4300
Facsimile: (202) 263-4329

Dated: March 7, 2006